
WASHINGTON STATE
DEPARTMENT OF ECOLOGY
STATE REVOLVING FUND

Impact of Loan Interest Rates on Sustainability
of the State Water Pollution Control Revolving
Fund (SRF)

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BACKGROUND

The Washington State (the “State”) Water Pollution Control Revolving Loan Fund Program (“SRF”) provides low-interest financing to local governments for projects that improve and protect the State’s water quality. The United States Congress established the SRF loan program as part of the Clean Water Act Amendments of 1987. The amendments authorized EPA to offer yearly capitalization grants to states for establishing self-sustaining loan programs.

Under RCW90.50A, the Department of Ecology (“Ecology”) is responsible for administering the fund and for “establishing loan terms and interest rates for loans made from the fund that assure....that adequate funds are maintained in the fund to meet future needs.”

Under WAC 173-98-030, SRF loan terms initially were established based on a percentage of the average municipal market rate. For loans up to 5 years, the interest rate was 30% of the average market rate, and, for loans of more than 5 years but not more than 20 years, the interest rate was 60% of the average municipal market rate.

Ecology has the authority to approve lower rates if a financial analysis of the fund demonstrates that lower interest rates for that year are not detrimental to the perpetuity of the fund. Starting with funding cycle 2001, Ecology established SRF loan interest rates of 0.5% for loans up to 5 years and 1.5% for loans from 5 to 20 years, which are below those set forth in WAC 173-98-030.

OVERVIEW AND PURPOSES OF STUDY

Ecology is re-evaluating the interest rates that it charges for SRF loans with the objective of maintaining the SRF program self-sustaining for perpetuity, while making the program beneficial to local communities in the State.

This study includes the following:

- A discussion of different alternatives for defining perpetuity.
- A comparison of the current SRF interest rate loans with those offered by the Public Works Trust Fund and with rates that communities could achieve through the municipal bond market.
- An analysis of the impact of different interest rate assumptions on the sustainability of the SRF loans.

Ecology currently is charging rates that may not be sustaining perpetuity. Attachment 1, provided by Ecology, compares the weighted average interest rate for Clean Water SRF Assistance by State. In 2004, Ecology’s rates were tied for seventh lowest being charged by 50 States.

A complicating factor for Ecology is the availability of low interest loans from the State Public Works Trust Fund (“PWTF”) to fund public works systems for mutual clients – local governments. PWTF currently charges rates substantially below that of Ecology. This puts pressure on Ecology to keep its rates lower in order to assure that the available funds are fully utilized.

HOW IS PERPETUITY MEASURED?

Perpetuity is not defined in either the State or federal regulations related to the SRF loan program. The two measures most frequently discussed with Ecology, and used herein, are as follows:

1. Maintain the amount available for loans at its current level, adjusted annually for inflation with inflation measured by the gross domestic product, implicit price deflator (IPD) (“Inflation Adjusted Perpetuity”).
2. Maintain loan balance at the current level, adjusted annually based on the State Fiscal Growth Factor (FGF), calculated by the Office of Financial Management, which takes into account both inflation (based on the IPD) and growth in the State (“FGF Adjusted Perpetuity”). The FGF is calculated as a three year moving average of population growth and inflation, lagged for two years.

Both of these measures of perpetuity have merit. With Inflation Adjusted Perpetuity, the amount of loan funds available in future years would remain the same in constant dollars. While this does not take into account population growth, any future federal money would increase the amount of the funds available.

The FGF Adjusted Perpetuity can be viewed as more conservative, since it would result in higher interest rates, assuming that State population continues to increase. However, using this as a base could cause the SRF loan rates to increase enough to be less attractive to potential borrowers. If the program does not offer attractive enough rates for the loan money to be fully utilized, then the State is not getting the full benefit of the available funds.

The following table shows the relationship between the Fiscal Growth Factor and inflation measured by the IPD.

Fiscal Year	Fiscal Growth Factor (%) (1)	Implicit Price Deflator (%) (2)
FY1994	7.18	2.21
FY1995	6.21	1.94
FY1996	5.13	1.80
FY1997	4.45	1.68
FY1998	4.05	1.12
FY1999	4.18	1.46
FY2000	3.32	2.29
FY2001	2.87	2.41
FY2002	2.79	1.53
FY2003	3.29	1.83
FY2004	3.20	2.20
FY2005	3.03	2.52*
FY2006	2.82	
FY2007	3.09*	

(1) As provided by the State. The FGF for FY2006 is final and for FY2007 is estimated.

(2) Calculated as the percent change in IPD over prior 12 month period. FY2005 is for 12 months through the 12/31/04.

Ultimately, the interest rates charged on the SRF loans need to match the index selected for perpetuity. For example in FY2005, the average perpetuity loan rate would need to be 3.03% for FGF Adjusted Perpetuity and 2.52% for Inflation Adjusted Perpetuity. This compares to a weighted average rate of about 1.19% currently being charged by Ecology (as discussed below).

An additional index discussed with Ecology is a construction cost index, which was also mentioned at an Ecology workshop in June 2005. A construction cost index, if properly applicable and available public use, could be another good measure for determining perpetuity. A readily available index is from the Engineering News Record (ENR). ENR publishes two indices for measure of construction costs -- the ENR Building Cost Index (BCI) and the ENR Construction Cost Index (CCI), with the primary difference that the CCI includes a larger labor component. The BCI index is more applicable to structures. These indices are available for 20 cities nationwide, including Seattle.

While readily available for a small fee, these indices are copyright protected and cannot be published in a report such as this without permission of McGraw Hill. A review of the indices, however, indicates that they are much more volatile than either the FGF or IPD discussed above. The BCI increased at an annual rate of 8.2% in 2004 and increased at an annual rate of 5.1% through August 2005. The CCI increased 3.8% in 2004 and at an annual rate of 2.3% through August 2005. To illustrate the volatility, in 2001, the CCI decreased 0.5% and in 1997 increased 9.1%, showing much wider swings than the FGF or IPD.

From December 1994 to December 2004, the BCI and CCI increased at compound annual rates of 3.36% and 3.45%, respectively. By comparison the FGF and IPD increased at annual compound rates of 3.94% and 1.84% respectively.

The use of a construction cost index would appear to be a good measure of the perpetuity over a period of time since it takes into count actual construction costs rather than the more broadly based IPD. Neither a construction cost index or the IPD takes into account growth in the State, however, which is reflected in the State Fiscal Growth Factor. Because of the volatility of the BCI and CCI, either would be difficult to use as a standard on a year to year basis. However, a comparison of these indices over time to the loan rates being charged for the SRF program would be of interest going forward.

For purposes of this study, the FGF and IPD are used as measures of perpetuity. The use of a construction cost index would push the rates toward the FGF measure of perpetuity. Combining the growth component of the FGF with a construction cost index would push rates even higher.

FUNDING SOURCES FOR SRF LOANS

The SRF loan program is funded from a combination of federal grants, State match money, payments received from outstanding loans and interest earnings on unexpended funds.

Capitalization Grants and State Match

Federal capitalization grants are funded by Congress and vary from year to year. Two options, shown below, are considered for future capitalization grants— one option is based on the historical Congressional budget and the second option is based on the President’s proposed budget. The State provides a 20% match for the federal funds received.

Assumed Future Capitalization Grants & State Match

	Capitalization Grants Based on Historical Congressional Budget			Capitalization Grants Based on President’s Proposed Budget		
	Federal Grant	State Match	Total	Federal Grant	State Match	Total
2006	\$18,739,413	\$3,747,883	\$22,487,296	\$18,739,413	\$3,747,883	\$22,487,296
2007	22,412,561	4,482,512	26,895,073	12,436,083	2,487,217	14,923,300
2008	22,412,561	4,482,512	26,895,073	14,949,350	2,989,870	17,939,220
2009	22,412,561	4,482,512	26,895,073	14,949,350	2,989,870	17,939,220
2010	22,412,561	4,482,512	26,895,073	14,949,350	2,989,870	17,939,220
2011	22,412,561	4,482,512	26,895,073	14,949,350	2,989,870	17,939,220
2012	22,412,561	4,482,512	26,895,073	14,949,350	2,989,870	17,939,220

The analysis assumes that there are no capitalization grants or State match available after FY 2012. From then on, the SRF loan program is assumed to rely on payments received from outstanding loans and interest earnings.

Payments Received From Outstanding Loans

As principal and interest on the loans are repaid, these funds are available to be loaned out again.

For purposes of analyzing the impact of different interest rates in this study, it is assumed that the total amount of funds available is loaned out each year. The start of repayment of the loans is assumed to lag the fiscal year when the loans are originated by 3 ½ years. For example, loans executed at the beginning of the FY 2006 funding cycle are assumed to start repayment on January 1, 2009. Payments received are available for additional loans.

Interest Earnings

Ecology also receives interest earnings from the Washington State Treasurer for the SRF program on unexpended loan funds. These earnings increase the amount available for loans in future years and vary from year to year for a variety of factors. For purposes of this analysis, interest earnings are assumed to be \$1.8 million increased each year by the growth in the amount of funds available for loans.

CURRENT SRF LOAN STATUS AND RATES

The SRF loan program currently has over \$550 million of loans in repayment, in disbursement or good faith commitments in progress, as shown on Attachment 2, and the program has approximately \$68 million in funds available for loans to finance projects in FY 2006.

Ecology currently is offering a combination of SRF lower interest rate loans and interest free loans for communities that demonstrate hardship.. The following shows the distribution of loans by interest rate for FY 2004 and FY 2005. The weighted average interest rate is approximately 1.19%. For purposes of this study it is assumed that the percentages of 20 year interest free loans, five year loans and 20 year loans do not change. However, the interest rates on the loans is assumed to vary.

SRF Loan Interest Rates and Distribution FY 2004 & FY 2005

Loan Interest Rate	Term	% of Total Amount Loaned
0.0%	20 Years	18.6%
0.5%	5 Years	3.5%
1.5%	20 Years	77.9%

CURRENT PUBLIC WORKS TRUST FUND LOAN PROFILE

For comparison, the following shows the Public Works Trust Fund loan rates and terms for the period starting with FY 2002. The average interest rate for the amount loaned is approximately 0.58%.

PWTF Loan Interest Rates and Distribution

Loan Interest Rate	Term	% of Total Amount Loaned
0.5%	20 Years	89.5%
1.0%	20 Years	4.4%
1.5%	20 Years	6.1%

STUDY METHODOLOGY

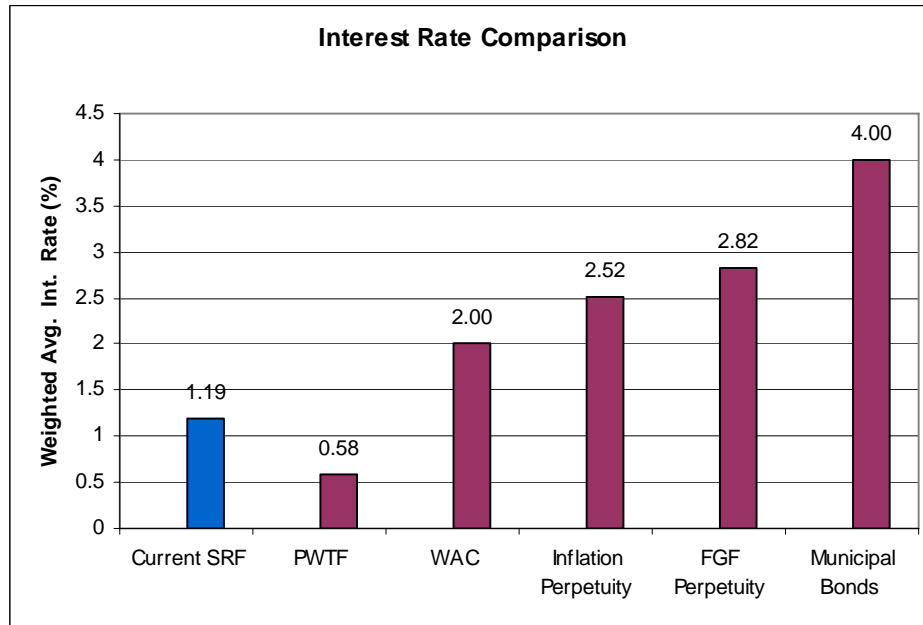
To illustrate the effects of different assumed interest rates on the funds available for SRF loans, the balance of funds available is calculated annually for a 50 year period. These long term calculations represent the results only for a particular set of assumptions and are presented for comparative purposes rather than to be used as an accurate forecast.

In completing the analysis, it is assumed that all available funds are assumed loaned out each year at the assumed rate. Debt service payments on these loans are then used to finance future loans.

Four different assumed weighted average interest rates are used for comparison:

- Current SRF Loan Program rates (currently 1.19%).
- The WAC rates of 30% of average municipal market rates for 5 yrs loans and 60% for 20 year loans (currently 2.00%). The calculation of this rate is discussed in the following section.
- Public Works Trust Fund rates (currently 0.58%).
- Rates required to maintain the fund for perpetuity for Inflation Adjusted Perpetuity and FGF Adjusted Perpetuity (currently 2.52% and 3.03%, respectively).

These are shown on the following graph. Also shown is the average rate that an issuer would receive selling 20 year insured revenue bonds, based on current bond market conditions. The average rate would be about 4.00%.



Calculation of Municipal Market Rates

The Bond Buyer publishes a series of indexes which can be used as a proxy for measuring municipal bond interest rates for borrowers in the State. The more applicable indexes include the following:

The Bond Buyer Weekly 20-Bond GO Index is published weekly and is the most commonly used index in the industry to reflect long term interest rate trends. General obligation bonds maturing in 20 years are used in compiling this index. While this index does not reflect the exact rates that an issuer would receive in the market place, it is a good index because of its universal acceptance and because it is for 20 year bonds. A typical water or sewer revenue bond would have a slightly higher interest rate than a general obligation bond; however, much of the historic difference has disappeared because of the wide spread use of bond insurance for municipal debt. As of June 2, this index was 4.18%. Coincidentally, this is the lowest rate for this index in recent history.

The following graph shows a history of this index since 1987.

Bond Buyer 20-Bond GO Index 1987 to Present



The Bond Buyer 40 Municipal Bond Index is published every business day and reflects the average yield for the longest maturity of 40 tax-exempt issuers. Currently the dates of the final maturities range from 2029 to 2043, so this index measures very long term bonds. The index shows a yield to the call date and a yield to maturity. As an example, for June 2, 2005 the yield to the call was 4.27% and to maturity was 4.65%.

The Bond Buyer also publishes an *11-Bond Index*, which is comprised of higher grade GO issuers, and a *25-Bond Revenue Index*, which is for revenue bonds maturing in 30 years.

Municipal Market Data (MMD) publishes a series of scales daily which is widely used in the bond industry. The scales show generic interest rates by year for a variety different ratings and credits, ranging from natural “AAA” credits to un-insured revenue bonds. Many underwriters price bonds off of the “AAA” rates. For example, on June 2, 2005, the 20 year “AAA” rate was 3.99% and the 5 year “AAA” rate was 3.02%. Depending on a variety of factors, an insured revenue bond could sell in the range of 0.20% to 0.30% above this rate. This index has the advantage of showing rates by year instead of a 20 year rate.

For purposes of this analysis, we have used the Bond Buyer 20-Bond GO Index as a measure of municipal rates because of its universal use. Using the WAC rates of 30% of the average municipal rate for 5 year bonds and 60% for 20 year bonds, the rates, based on this index as of June 2, 2005 would be 1.25% for 5 year loans and 2.51 % for 20 year loans. Based on the loan profile discussed above under “CURRENT SRF LOAN STATUS AND RATES,” the resulting weighted average rate is 2.00%.

The 20-Bond GO Index over the last 12 months was 4.55%, which results in a weighted average interest rate of 2.18%.

SUMMARY OF RESULTS

Rates Required for Perpetuity

The analysis shows that the current SRF interest rates of 0.5% for loans up to 5 years and 1.5% for loans from 5 to 20 years, combined with the current level of interest free loans, are below that required to maintain the fund for either definition of perpetuity. The weighted average interest rate of SRF loans for FY 2004 and FY 2005 is approximately 1.19%.

To maintain the fund at the current level for perpetuity, adjusted for the IPD, the weighted average loan interest rate would need to increase to an estimated 2.52%, the approximate current inflation rate as measured by the implicit price deflator. This is a 111% increase over current rates.

The FY 2006 Fiscal Growth Factor is 2.82%, and the estimated FY 2007 Fiscal Growth Factor is 3.09%. The average loan interest rate for 2006 loans would need to increase to these amounts to maintain perpetuity, with this as the defining factor. For FY2006, this is a 137% increase over current rates.

For comparative purposes, the weighted average interest rate for the Public Works Trust Fund loan program currently is approximately 0.61%. So that program also is charging rates below that required for either definition of perpetuity.

The results will vary depending on assumptions for both long term inflation and the Fiscal Growth Factor, and this analysis should be periodically updated to reflect changed conditions.

Based on the current SRF loan distribution profile, the following table shows the SRF rates necessary for the different definitions of perpetuity. Also shown are the WAC rates of 30% of average municipal market rates for 5 year loans and 60% for 20 year loans, based on market conditions as of June 2, 2005..

% of Total Amounts Loaned	Term	Current Rates Avg. – 1.19%	WAC Rates 30 and 60% of tax-exempt muni bonds	Inflation Based Perpetuity Avg. – 2.52%	FGF Based Perpetuity (1) Avg. – 2.82%
18.6%	20 Years	0.0%	0.00%	0.00%	0.00%
3.5%	5 Years	0.5%	1.25%	1.06%	1.18%
77.9%	20 Years	1.5%	2.51%	3.18%	3.55%

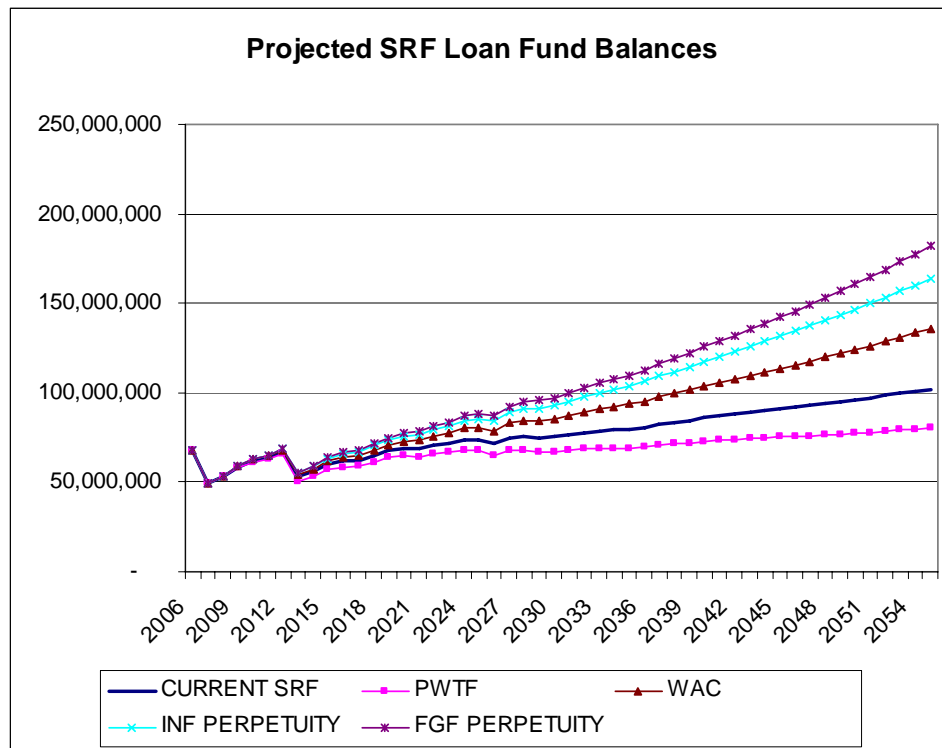
(1) Value shown is for FY2006. FY 2007 preliminary value is 3.09%.

The rates charged for the different types of loans are calculated such that the weighted average rate is equal to the current Inflation Based Perpetuity rate of 2.52% or current FGF Based Perpetuity rate of 2.82%, as applicable.

For comparison, the average interest rate for a 5 year tax exempt municipal bond is approximately 4.0% for an issue maturing over 20 years and approximately 3.25% for an issue maturing over 5 years.

Projected Funding Levels

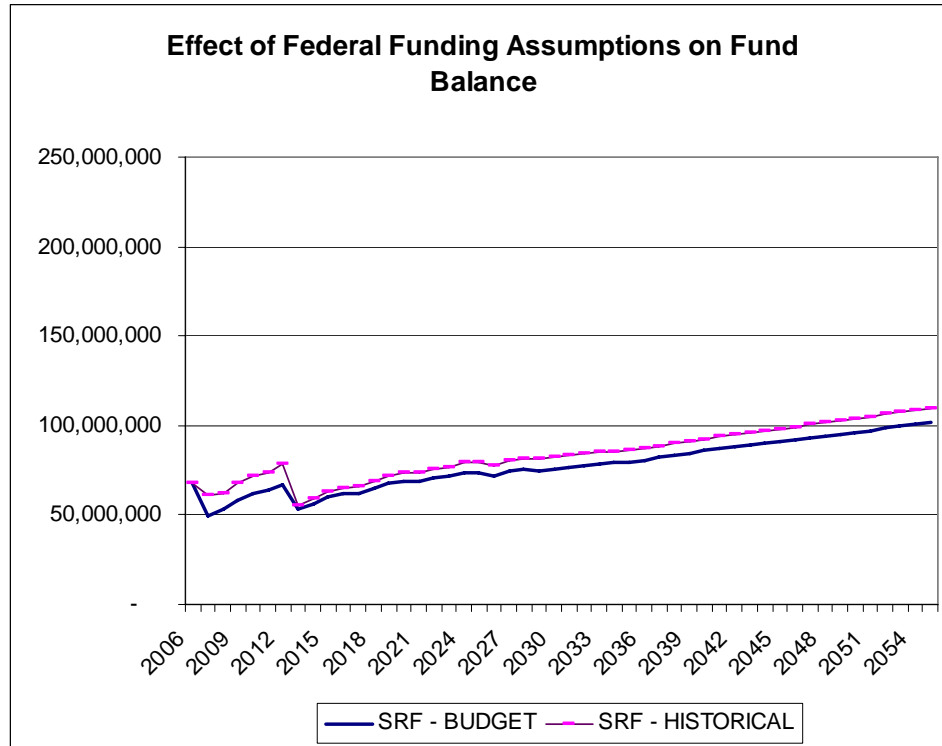
The graph below shows the projected SRF fund balance available for loans through 2055 for different assumed loan interest rates. This graph assumes that future federal capitalization grants and State matching funds are as proposed in the President's budget, which is the lower funding amount.



As illustrated, the current SRF loan policy falls short of either definition of perpetuity. These results are shown numerically on Attachment 3.

Attachment 4 shows the detailed calculations for the projected fund balances for the Current SRF case.

If historical federal funding is available for SRF rather than the President's budget, this has a positive impact on the total amount available. However, it does not change the analysis of achieving perpetuity. The following graph shows how the historical federal funding would affect the loan fund balances compared to the President's budget, based on current SRF loan policies.



Summary

Moving to interest rates tied to the municipal bond market is a good step toward maintaining perpetuity of the SRF, since this method allows for SRF loan rates to change as inflation and the bond market change. The WAC 30% - 60% rule falls short of achieving perpetuity, with the current rate approximately 2.00% and the average rate over the last year at 2.18%, compare to the inflation based perpetuity rate of 2.52% and FGF based perpetuity rate of 2.82%, currently.

To achieve long term perpetuity, this study indicates that rates ultimately should be set higher than at present and higher than the WAC 30% - 60% rule. This step would be supported by comparing loan rates to the inflation based perpetuity, FGF based perpetuity or to a construction cost index.

The upper limit on SRF loan rates would be the rate at which funds are available from alternative sources, primarily municipal bonds, adjusted for the administrative and compliance factors that an SRF borrow must face.

While not direct competitors, The SRF program and the PWTF both offer low interest loans. A historical concern has been the inability to use up the SRF funds if rates are set too high compared to the PWTF. Potentially both programs and the State would benefit in the long run if the funds were self sustaining and had comparably higher rates.